Paper No. 19

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte FRANCES M. PLATT, GABRIELLE R. NEISES,
RAYMOND A. DWEK and TERRY D. BUTTERS

Appeal No. 1996-2537
Application No. 08/102,654

ON BRIEF

Before WINTERS, WILLIAM F. SMITH and LORIN, Administrative Patent Judges.

WINTERS, Administrative Patent Judge.

DECISION ON APPEAL

This is an appeal from the final rejection of claim 2, the sole claim remaining in the application. Claim 2 reads as follows:

> 2. N-alkyldeoxygalactonojirimycin in which the alkyl is butyl.

I. REFERENCES

The references relied on by the examiner are:

Getman et al. (Getman) 5,128,347 Jul. 07, 1992

Legler et al. (Legler), "SYNTHESIS OF 5-AMINO-5-DEOXY-D-GALACTOPYRANOSE AND 1,5-DIDEOXY-1,5-IMINO-D-GALACTITOL, AND THEIR INHIBITION OF "-AND $-D-GALACTOSIDASES" Carbohydrate Research, 155, pp 119-129
(1986).

The references relied on by this merits panel are:

American Chemical Society File Registry No. RN 108147-54-2.

Enzure, et al. (Ezure) 2,086,413 Dec. 30, 1991. (Canadian Patent Application)

II. REJECTION

Claim 2 stands rejected under 35 U.S.C. § 103 as unpatentable over Legler in view of Getman.

On consideration of the record, we reverse the examiner's rejection and enter a new ground of rejection under the provisions of 37 CFR § 1.196(b).

III. THE EXAMINER'S REJECTION

A. The subject matter on appeal is directed to N-butyldeoxygalactonojirimycin (N-butyl DGJ). Specification,

page 2, lines 3-6, and 23-24. This compound selectively inhibits the

biosynthesis of glycolipids “without effect either on the maturation of N-linked oligosacchrides or lysosomal glucocerebrosidase.” Specification, page 2, line 29, through page 3, line 2.

B. Legler discloses N-heptyl-deoxygalactonojirimycin (N-heptyl DGJ)(page 122, lines 5-6, page 127, lines 25-30, and Table 1 at page 122). According to Legler, this compound shows inhibition of $-D-galactosidase from *E.coli* and $-D-glucosidase from almonds. See Table 1. However, Legler does not disclose N-butyl DGJ.

C. Getman describes 1,4-dideoxy-4-fluoronojirimycin compounds, represented by chemical formula at col. 1, line 54, through col. 2, line 1. Getman discloses that the R group attached to the nitrogen-ring-atom represents H or alkyl radicals having from 1 to about 10 carbon atoms. According to

Getman, these compounds manifest glycosidase inhibition activity. Getman illustrates the glycosidase inhibition activity of 1,4-dideoxy-4-fluoronojirimycin and N-butyl-1,4-dideoxy-4-fluoronojirimycin (Table 1 at col. 14, and the accompanying text). Getman

discloses that "[i]t is contemplated that other N-derivatives will also manifest glycosidase inhibition activity" (col. 12, lines 61-66).

D. The examiner concludes that a person having ordinary skill in the art at the time the invention was made would have found it obvious to vary the length of the alkyl chain attached to the nitrogen-ring-atom of Legler's DGJ compound with the expectation that the resulting compounds would be useful in binding $-D-galactosidase from *E.coli* and $-D-glucosidase from almonds. Answer, page 2, lines 18-23.

E. We agree with the examiner's prima facie case of obviousness. Legler's N-heptyl-DGJ and the 1,4-dideoxy-4-

fluoronojirimycin compounds of Getman are similar in chemical structure and have a similar property, namely, glycosidase inhibition activity. Accordingly, the replacement of heptyl with butyl in Legler's N-heptyl DGJ would have been obvious to a person having ordinary skill in the art, because that person would have had a reasonable expectation that non-alkylated DGJ and N-alkyl-DGJ compounds where the alkyl group has 1 to about 10

carbon atoms would have similar properties. "An obviousness rejection based on similarity in chemical structure and function entails the motivation of one skilled in the art to make a
claimed compound, in the expectation that compounds similar in structure will have similar properties." In re Payne, 606 F.2d 303, 313, 203 USPQ 245, 254 (CCPA 1979).

F. However, the evidence in this record addresses the thrust of the rejection and rebuts the examiner's prima facie case of obviousness. Appellants argue that they have found

that the non-alkylated DGJ, N-methyl-DGJ, and N-ethyl-DGJ are inactive for the inhibition of glycolipid biosynthesis, whereas N-butyl DGJ achieves full inhibition of glycolipid biosynthesis. Brief, page 3, fourth and fifth paragraphs, and page 10, lines 5-10. Appellants' argument is supported by evidence in the specification, page 18, lines 1-19, and Figure 4B. Thus, variation of the alkyl group attached to the nitrogen-ring-atom in Legler's DGJ compound would lead to compounds having distinctly different properties, contrary to the expectation of

similar properties based on the examiner's conclusion of obviousness.

Accordingly, we reverse the rejection of claim 2 under 35 U.S.C. § 103 as unpatentable over Legler in view of Getman.

IV. NEW GROUND OF REJECTION

Under the provisions of 37 CFR § 1.196(b), we enter the

following new ground of rejection.

Claim 2 is rejected under 35 U.S.C. § 102(b) as anticipated by Ezure[1], as further evidenced by American Chemical Society File Registry No. RN 108147-54-2 and Legler.

Ezure describes the compound recited in claim 2 on appeal. Ezure describes the synthesis of N-n-butyl-1-deoxygalactostatin, and shows that the compound has $-galactosidase inhibitory activity (Example 23 at page 29, and Table 1 at page 31). This compound is also identified as N-n-butyl-1,5-dideoxy-1,5-imino-D-galactitol or N-n-butyl-1-deoxygalactonojirimycin. See File Registry No. RN 108147-54-2, and Legler, page 120, lines 12, 18 and 19.

V. CONCLUSION

In conclusion, for the reasons set forth in the body of this opinion, we reverse the rejection of claim 2 under 35 U.S.C.

[1] Ezure is the Canadian equivalent of European Patent Application 0536402-A, cited on the form PTO-1449 filed Sep. 15, 1994, attached to Paper No. 9.

§ 103 as unpatentable over Legler in view of Getman. We enter a new ground of rejection of claim 2 under 35 U.S.C. § 102(b) as anticipated by Ezure.

This decision contains a new ground of rejection pursuant to 37 CFR § 1.196(b)(amended effective Dec. 1, 1997, by final rule notice, 62 Fed. Reg. 53,131, 53,197 (Oct. 10, 1997), 1203 Off. Gaz. Pat. & Trademark Office 63, 122 (Oct. 21, 1997)). 37 CFR § 1.196(b) provides that, "A new ground of rejection shall not be considered final for purposes of judicial review."

37 CFR § 1.196(b) also provides that the appellant, WITHIN TWO MONTHS FROM THE DATE OF THE DECISION, must exercise one of the following two options with respect to the new ground of rejection to avoid termination of proceedings (§ 1.197(c)) as to the rejected claims:

> (1) Submit an appropriate amendment of the claims so rejected or a showing of facts relating to the claims so rejected, or both, and have the matter reconsidered by the examiner, in which event the application will be remanded to the examiner. . . .
>
> (2) Request that the application be reheard under § 1.197(b) by the Board of Patent Appeals and

Interferences upon the same record. . . .
No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a).

REVERSED
37 CFR § 1.196(b)

SHERMAN D. WINTERS Administrative Patent Judge	)	
WILLIAM F. SMITH Administrative Patent Judge	)	BOARD OF PATENT APPEALS AND INTERFERENCES
HUBERT C. LORIN Administrative Patent Judge	)	

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SCOTT J. MEYER - A3SG
MONSANTO COMPANY
800 NORTH LINDBERGH BOULEVARD
ST. LOUIS, MO 63167